

**UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE**

ECOLOGICAL SITE DESCRIPTION

ECOLOGICAL SITE CHARACTERISTICS

Site Type: Rangeland

Site ID: R036XB112NM

Site Name: Loamy

Precipitation or Climate Zone: 10 to 16 inches

Phase:

PHYSIOGRAPHIC FEATURES

Narrative:

This site occurs on level to sometimes strongly sloping piedmont slopes or plains. Average slopes are 5 percent or less, although slopes may range as high as 15 percent. Elevations vary from about 6,000 to 7,300 feet above sea level.

Land Form:

1. Fan piedmont
2. Plain
- 3.

Aspect:

1. N/A
- 2.
- 3.

	Minimum	Maximum
Elevation (feet)	6,000	7,300
Slope (percent)	<5	15
Water Table Depth (inches)	N/A	N/A
Flooding:	Minimum	Maximum
Frequency	None	Occasional
Duration	None	Very brief
Ponding:	Minimum	Maximum
Depth (inches)	N/A	N/A
Frequency	N/A	N/A
Duration	N/A	N/A

Runoff Class:

Negligible to high.

CLIMATIC FEATURES

Narrative:

Average annual precipitation varies from about 10 inches to just over 16 inches. Fluctuations ranging from about 5 inches to 25 inches are not uncommon. The overall climate is characterized by cold dry winters in which winter moisture is less than summer. As much as half or more of the annual precipitation can be expected to come during the period of July through September. Thus, fall conditions are often more favorable for good growth of cool-season perennial grasses, shrubs, and forbs than are those of spring.

The average frost-free season is about 120 days and extends from approximately mid May too early or mid September. Average annual air temperatures are 50 degrees F or lower and summer maximums rarely exceed 100 degrees F. Winter minimums typically approach or go below zero. Monthly mean temperatures exceed 70 degrees F for the period of July and August.

Rainfall patterns generally favor warm-season perennial vegetation, while the temperature regime tends to favor cool-season vegetation. This creates a somewhat complex community of plants on any given ecological site, which is quite susceptible to disturbance and is at or near its productive potential only when both the natural warm/cool-season dominants are present.

Climate data was obtained from <http://www.wrcc.sage.dri.edu/summary/climsmnm.html> web site using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F respectively.

	Minimum	Maximum
Frost-free period (days):	102	148
Freeze-free period (days):	119	174
Mean annual precipitation (inches):	10	16

Monthly moisture (inches) and temperature (°F) distribution:

	Precip. Min.	Precip. Max.	Temp. Min.	Temp. Max.
January	.40	.91	12.9	47.0
February	.43	.65	16.6	51.2
March	.47	1.10	20.9	57.1
April	.30	.49	26.1	65.3
May	.46	.98	33.4	74.2
June	.51	.57	41.4	84.2
July	2.15	3.45	50.4	85.1
August	2.28	3.03	48.7	82.4
September	1.29	1.68	41.4	77.9
October	.81	1.12	29.4	69.2
November	.38	.71	19.1	57.3
December	.53	.95	13.1	48.9

Climate Stations:

Station ID	Location	Period	
		From:	To:
290640	Augustine 2E, NM	05/01/26	07/31/00
296812	Pietown 19NE, NM	09/01/88	07/31/00
297180	Quemado, NM	08/01/15	07/31/00

INFLUENCING WATER FEATURES**Narrative:**

This site is not influenced by water from a wetland or stream.

Wetland description:

System	Subsystem	Class
N/A		

If Riverine Wetland System enter Rosgen Stream Type:

N/A

REPRESENTATIVE SOIL FEATURES**Narrative:**

Typical soils are moderately deep to deep and well drained. The surface layer is medium textured loams, fine sandy loams, and very fine sandy loams. Surface and underlying textures may contain gravels but generally contains less than 35 percent. Underlying layers vary from moderately coarse to fine textured. The water-holding capacity is moderately high to high, and permeability is moderately slow to moderate. As vegetation cover deteriorates, however, intake rates may be reduced to slow.

Parent Material Kind: Alluvium

Parent Material Origin: Mixed

Surface Texture:

1. Loam
2. Fine sandy loam
3. Sandy loam
4. Silty
5. Very fine sandy loam
6. Sandy clay loam
7. Gravelly fine sandy loam
8. Gravelly loam
9. Gravelly sandy loam
10. Loamy fine sand
11. Loamy sand
12. Clay loam
13. Very gravelly loam

Surface Texture Modifier:

1. Gravel
2.
3.

Subsurface Texture Group: Clayey**Surface Fragments <=3" (% Cover):** 15 to 35**Surface Fragments >3" (% Cover):** N/A**Subsurface Fragments <=3" (%Volume):** 15 to 35**Subsurface Fragments >=3" (%Volume):** 15 to 35

	Minimum	Maximum
Drainage Class:	<u>Well</u>	<u>Well</u>
Permeability Class:	<u>Very slow</u>	<u>Moderately rapid</u>
Depth (inches):	<u>20</u>	<u>>72</u>
Electrical Conductivity (mmhos/cm):	<u>0.00</u>	<u>8.00</u>
Sodium Absorption Ratio:	<u>0.00</u>	<u>8.00</u>
Soil Reaction (1:1 Water):	<u>6.6</u>	<u>9.0</u>
Soil Reaction (0.1M CaCl₂):	<u>N/A</u>	<u>N/A</u>
Available Water Capacity (inches):	<u>6</u>	<u>12</u>
Calcium Carbonate Equivalent (percent):	<u>N/A</u>	<u>N/A</u>

PLANT COMMUNITIES

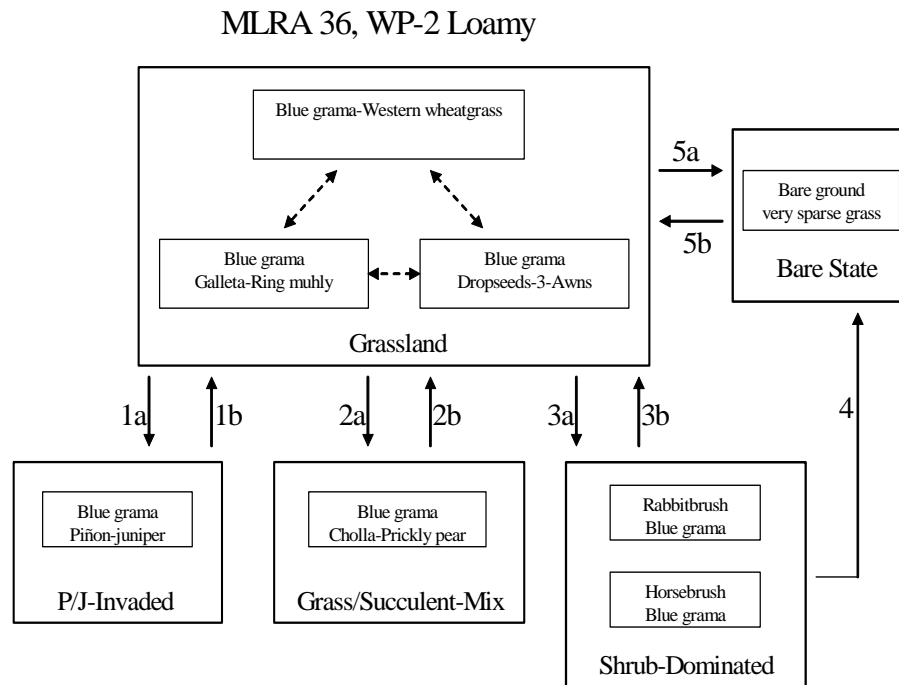
Ecological Dynamics of the Site:

Overview

The Loamy site is one of the broadest ecological sites in WP-2 encompassing a wide range of soil series. It is associated with Sandy, Shallow Sandstone, Malpais, Limy, Shallow, Swale, and Savannah sites. Loamy sites occur as distinct units adjacent to or as part of complex or association with soil map units correlated to the above sites. The historic plant community of the Loamy site is a grassland characterized by a mixture of cool and warm-season grasses, and occasional shrubs and forbs. Blue grama and western wheatgrass are the dominant grasses. Fourwing saltbush and winterfat are characteristic shrubs. Loss of herbaceous cover and resulting decreased competition by grasses may favor piñon/juniper invasion or the encroachment of shrubs, typically, rabbitbrush or horsebrush. Seed dispersal and the reduction of natural fire frequency may also contribute to the invasion of piñon/juniper. Decreased available soil moisture due to drought and overgrazing, seed dispersal, and decreased fire frequency may promote the transition to a Grass/Succulent state. A severe loss of herbaceous cover, soil sealing, and reduced infiltration may cause the transition to a Bare state.

While Piñon/Juniper-Invaded, Grass Succulent-Mix, and Shrub-Dominated may result from similar transitional drivers, it is unclear what factor or combination of factors ultimately determine the transition pathway.

Plant Communities and Transitional Pathways (diagram)



1a. Loss of grass cover, resource competition, seed dispersal, lack of fire. 1b. Brush control, prescribed fire, prescribed grazing.

2a. Drought, overgrazing, dispersal of succulent propagules, lack of fire. 2b. Brush control, prescribed grazing, prescribed fire.

3a. Loss of grass cover, resource competition. 3b. Brush control, prescribed grazing, seeding?

4. Brush control without grass recovery.

5a. Severe loss of grass cover, soil sealing and decreased infiltration, erosion. 5b. Break up physical soil crusts, range seeding, prescribed grazing.

MLRA 36; WP-2; Loamy

Grassland



- Blue grama, sand dropseed, bottlebrush squirreltail, western wheatgrass, winterfat, and 4-wing saltbush.
- Grass cover fairly uniform with some large (>1m) bare patches.
- Penistaja fine sandy loam, Cibola Co., NM.

Juniper-Invaded



- Blue grama with some galleta, 3-Awns, ring muhly, and juniper
- Grass cover fairly uniform to patchy.
- Penistaja fine sandy loam, Cibola Co., NM.

Shrub-Dominated



- Rubber rabbitbrush, low-vigor blue grama, ring muhly.
- Sparse grasscover in shrub interspaces.
- Penistaja fine sandy loam, Cibola Co., NM.

Bare State



- Isolated plants of blue grama and ring muhly with a few cholla and 4-wing saltbush.
- Bare ground interconnected and isolated grass patches.
- Remnants of blue grama pedestalled.
- Penistaja fine sandy loam, Cibola Co., NM.

Plant Community Name: Historic Climax Plant Community

Plant Community Sequence Number: 1 **Narrative Label:** HCPC

Plant Community Narrative: State Containing Historic Climax Plant Community
Grassland: Blue grama and western wheatgrass are the primary grass species of the historic plant community. Other grasses that appear in significant amounts include spike muhly, bottlebrush squirreltail, New Mexico feathergrass, needle and thread, sideoats grama and galleta. Fourwing saltbush and winterfat are characteristic shrubs. Continuous heavy grazing typically causes a decrease in western wheatgrass, sideoats grama, spike muhly, winterfat, and fourwing saltbush. This is followed by an increase of blue grama, galleta, dropseeds, ring muhly, and threeawns. On heavier textured soils a community dominated by blue grama with galleta and ring muhly as sub-dominants may result. On lighter textured soils, dropseeds and threeawns may be sub-dominant to blue grama.

Diagnosis: Grass and litter cover is evenly distributed with few large bare areas present. Shrubs are a minor component averaging six percent or less canopy cover. Evidence of erosion is minimal.

Canopy Cover:

Shrubs and half shrubs 6 %

Ground Cover (Average Percent of Surface Area).

Grasses & Forbs 25

Bare ground 53

Surface gravel 5

Surface cobble and stone 1

Litter (percent) 16

Litter (average depth in cm.) 2

Plant Community Annual Production (by plant type): _____

Plant Type	Annual Production (lbs/ac)		
	Low	RV	High
Grass/Grasslike	300	530	760
Forb	30	53	76
Tree/Shrub/Vine	45	80	114
Lichen			
Moss			
Microbiotic Crusts			
Total	375	663	950

Plant Community Composition and Group Annual Production:

Plant Type - Grass/Grasslike

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
1	BOGR2	Blue Grama	133 – 166	133 – 166
2	PASM	Western Wheatgrass	66 – 133	66 – 133
3	MUWR	Spike Muhly	53 – 80	53 – 80
4	ELEL5	Bottlebrush Squirreltail	33 – 66	33 – 66
5	HENE2 HECO26	New Mexico Feathergrass Needleandthread	33 – 66	33 – 66
6	PLJA	Galleta	7 – 33	7 – 33
7	BOCU	Sideoats Grama	7 – 33	7 – 33
8	LYPH SPCR	Wolftail Sand Dropseed	7 – 33	7 – 33
9	MUTO2 MOSQ ARIST	Ring Muhly False Buffalograss Threeawn spp.	7 – 33	7 – 33
10	BOER4	Black Grama	7 – 20	7 – 20
11	SPAI	Alkali Sacaton	7 – 33	7 - 33

Plant Type - Forb

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
12	2FP	Other Perennial Forbs	7 – 53	7 – 53
13	2FA	Other Annual Forbs	7 – 33	7 - 33

Plant Type – Tree/Shrub/Vine

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production
14	ATCA2	Fourwing Saltbush	7 – 33	7 – 33
15	KRLA2	Winterfat	7 – 33	7 – 33
16	ARBI3 ARFR4	Bigelow Sagebrush Fringed Sagewort	7 – 33	7 – 33
17	GUSA2 TECA2 ERNAN5	Broom Snakeweed Spineless Horsebrush Rubber Rabbitbrush	7 – 20	7 – 20
18	LYPA FAPA	Pale Wolfberry Apacheplume	7 – 20	7 - 20

Plant Type - Lichen

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Type - Moss

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Type - Microbiotic Crusts

Group Number	Scientific Plant Symbol	Common Name	Species Annual Production	Group Annual Production

Plant Growth Curves

Growth Curve ID 0303NM

Growth Curve Name: HCPC

Growth Curve Description: Mixed warm/cool-season grassland w/shrub and half-shrub and forb component.

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
0	0	5	7	10	15	25	25	8	5	0	0

Catalog of states and community pathways

Additional States:

Piñon/Juniper-Invaded: This state is characterized by the presence of piñon or juniper and decreased cover and production of grasses. Grass cover decreases as piñon/juniper canopy increases. Blue grama is the dominant grass, usually with ring muhly, galleta, threeawns, and dropseeds as sub-dominants.

Diagnosis: Piñon and or juniper are present. Blue grama is the dominant grass. Grass cover is variable ranging from fairly uniform to patchy with large bare areas present. Evidence of erosion such as elongated waterflow patterns, pedestalling of plants, and rills may be common.

Transition to Piñon/Juniper-Invaded (1a) Loss of grass cover, the associated decreased competition by grasses, seed dispersal, and lack of fire are believed to facilitate the encroachment of piñon/juniper.^{1,2,3,7} Loss of herbaceous cover due to overgrazing and drought can provide competition free areas for piñon/juniper seedling establishment, and afford a competitive advantage to established woody species. Dispersal of piñon and juniper seed by wildlife and livestock may contribute to the probability of piñon/juniper invasion.^{2,4,5} Sites in close proximity to established piñon/juniper woodlands might also be at greater risk of invasion. Historically, periodic fire may have helped to suppress piñon/juniper by killing seedlings and some established trees, and by increasing the susceptibility in others to damage by insects, disease, and drought.

Key indicators of approach to transition:

- Decrease in western wheatgrass, sideoats grama, and winterfat.

- Increase in amount and patch size of bare ground.
- Presence of piñon/juniper seedlings.

Transition back to Grassland (1b) Brush control is necessary to reduce the competitive influence of piñon/juniper and facilitate grass recovery. Prescribed fire may be useful in restoring grass dominance, provided adequate fine fuels remain to effectively carry fire. Prescribed grazing will help ensure adequate rest following brush control and will assist in the establishment and maintenance of grass cover.

Grass/Succulent-Mix: This state is characterized by an increase in cholla and pricklypear. Increased densities of cholla or pricklypear is recognized as a management concern, but their impact on grass production is unclear.⁶ Light to medium cholla or prickly pear infestation do not seem to greatly reduce grass production, however it restricts grazing access and interferes with livestock movement and handling. Blue grama is typically the dominant grass. Threeawns, galleta, ring muhly, and dropseeds are subordinates.

Diagnosis: Cholla and prickly pear are found at increased densities. Grass cover is variable ranging from fairly uniform to patchy with frequent areas of bare ground present. Blue grama is the dominant grass.

Transition to Grass/Succulent-Mix (2a) Decreased available soil moisture due to drought and overgrazing may initiate this transition. During severe drought perennial grass cover can decline significantly, leaving resources available for use by more drought tolerant succulents. Cholla and pricklypear are both adapted to and favored by limited soil moisture due to the ability of their shallow, wide spreading root systems to absorb and store water.⁸ Wildlife and livestock may act as dispersal agents for succulents. Fruits and seeds may be spread by wildlife species that feed on succulents. Wildlife and livestock can dislodge and transport sprouting stems and pads of cholla and pricklypear. It has been reported that succulent densities may be higher on areas historically grazed by high numbers of sheep. If fire historically played a part in suppressing seedlings of succulents on this site, then reduced fire frequency may favor the increase of succulents.

Key indicators of approach to transition:

- Increase in the size and number of bare patches.
- Increase in amount of succulent seedlings.

Transition back to Grassland (2b) Fire is an effective means of controlling cholla and prickly pear if adequate grass cover remains to carry fire. Cholla greater than two feet tall or pricklypear with a large amount of pads (>15-20) are harder to kill. Chemical control is effective in controlling prickly pear and cholla; apply when growth starts in May. Hand grubbing is also effective if cholla or pricklypear is severed 2-4 inches below ground and care is taken not to let broken joints or pads take root. Stacking and burning piles and grubbing during winter or drought help keep broken joints and pads from rooting. Prescribed grazing will help ensure proper forage utilization and sustain grass cover.

Shrub-Dominated: The state is characterized by the predominance of shrubs, especially rabbitbrush and or horsebrush. Rabbitbrush is favored on soils with finer textured (heavy clay

loam and clay) sub-surface horizons. The grass component is typically a low-vigor blue grama dominated community with ring muhly, threeawns, and dropseeds occurring as subordinates.

Diagnosis: Rabbitbrush, and/or horsebrush are the dominant shrubs. Blue grama is the dominant grass and cool season grasses are sparse or absent. Grass cover is patchy to sparse with large interconnected bare areas present. Evidence of erosion such as pedestals, terracettes, and rills may be common.

Transition to Shrub-Dominated (3a) Loss of herbaceous cover due to overgrazing and/or extended drought and the associated decreased resource competition by grasses may facilitate the transition to the Shrub-Dominated state.

Key indicators of approach to transition:

- Decreased grass and litter cover.
- Increased bare patch size.
- Increased rabbitbrush or horsebrush seedlings.

Transition back to Grassland (3b) Brush control will be necessary to remove shrubs and eliminate competition for resources necessary for grass establishment or reproduction. Seeding may be necessary on those sites where desired grass species are absent or limited. Prescribed grazing will help ensure adequate time is elapsed before grazing is allowed, and proper forage utilization following seeding establishment.

Bare State: Extensive bare areas, minimal grass cover, physical soil crusts, and erosion characterize this state. Physical crusts may be more pervasive on silt loam soils. Grass cover is extremely sparse, consisting of small isolated patches or individual plants. A few widely scattered shrubs or succulents may be present.

Diagnosis: Bare ground is dominant and grasses cover is very sparse. Physical soil crusts are widespread.

Transition to Bare State (4) Brush control without successful recovery of grasses may result in a Bare state.

Transition to Bare State (5a) Continuous heavy grazing, or other repeated disturbance that severely depletes grass cover could initiate this transition. The loss of grass and litter cover causes a decrease in organic matter, soil aggregate stability, and infiltration. This further promotes the formation of physical soil crusts, impedes seedling establishment, and increases runoff and erosion.

Key indicators of approach to transition:

- Continued reduction in grass cover.
- Reduced aggregate stability in bare areas
- Increased soil surface sealing and increased evidence of erosion.

Transition back to Grassland (5b) Seeding will be necessary to reestablish grasses. The use of livestock or mechanical means may be useful in breaking up physical soil crusts and improving infiltration prior to seeding. Prescribed grazing will help to ensure adequate rest and proper forage utilization following seeding. The degree to which this site is capable of recovery depends on the extent of degradation to the soil resources and adequate rainfall necessary to establish and maintain grasses.

ECOLOGICAL SITE INTERPRETATIONS

Animal Community:

Habitat for Wildlife:

This site provides habitat which support a resident animal community that is characterized by pronghorn antelope, black-tailed jackrabbit, badger, Gunnison's prairie dog, banner-tailed kangaroo rat, Botta's pocket gopher, silky pocket mouse, burrowing owl, mourning dove, chipping sparrow, western spadefoot toad, leopard lizard, short-horned lizard, and prairie rattlesnake.

The chestnut-collared longspur winters on this site, and the common raven and prairie falcon hunt over it.

Hydrology Functions:

The runoff curve numbers are determined by field investigations using hydrologic cover conditions and hydrologic soil groups.

Hydrologic Interpretations	
Soil Series	Hydrologic Group
Aquima	B
Augustine	B
Bond	B
Celacy	C
Celsosprings	C
Clovis	B
Datil	B
Dioxice	B
Doakum	B
El Rancho	B
Flaco	C
Flugle	B
Galestina	C
Gilco	B
Goesling	B
Grieta	B
Guy	B
Hagerman	C & B
Jacee	C
Jocity	B
Kim	B

La Fonda	B
Landavaso	B
Las Lucas	B
Loarc	B
Maia	B
Manzano	B
Marianolake	B
Mikim	B
Millpaw	C & D
Oelop	B
Paguate	C
Penistaja	B
Querencia	B
Redpen	B
Scholle	B
Shavano	B
Silver	C
Tapia	B
Teczuni	C
Tejana	B
Veteado	C
Witt	B
Zia	B

Recreational Uses:

This site offers fair to good potential for hiking, horseback riding, nature observation, photography, and hunting for pronghorn antelope. Very limited hunting opportunities for quail and dove usually exist.

During seasons when soil moisture is favorable, the site may display a colorful array of wildflowers.

Wood Products:

This site has no significant value for wood products.

Other Products:**Grazing:**

This site is suitable for grazing by cattle, sheep, and horses in all seasons of the year, but is poorly suited to continuous yearlong use if potential natural vegetation is to be maintained. Under such use, cool-season grasses such as western wheatgrass may decline rapidly. If use is heavy and prolonged, such species as sideoats grama and spike muhly will also decline.

Typical site deterioration is characterized by low-vigor, sod-like blue grama, which may eventually come to make up 80 to 95 percent of the composition. Further deterioration is characterized by increasing amounts of bare ground, possible invasion by woody plants, such as pinyon and juniper, and increases in ring muhly, threeawn spp., and sand dropseed. The site is also susceptible to takeover by rabbitbrush. Production in these instances may be cut to one-third or even one-fourth of the potential.

Other Information:**Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month**

Similarity Index	Ac/AUM
100 - 76	3.3 – 4.6
75 – 51	4.4 – 6.8
50 – 26	6.5 – 11.0
25 – 0	11.0+

Plant Part	Code	Species Preference	Code
Stems	S	None Selected	NS
Leaves	L	Preferred	P
Flowers	F	Desirable	D
Fruits/Seeds	F/S	Undesirable	U
Entire Plant	EP	Not Consumed	NC
Underground Parts	UP	Emergency	E
		Toxic	T

Plant Preference by Animal Kind:

Animal Kind: Livestock

Animal Type: Cattle

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Western Wheatgrass	Pascopyrum smithii	EP	D	D	P	P	P	D	D	D	D	D	D	D
Spike Muhly	Muhlenbergia wrightii	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Sideoats Grama	Bouteloua curtipendula	EP	P	P	P	P	P	P	P	P	P	P	P	P
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	D
Needleandthread	Hesperostipa comata	EP	D	D	P	P	P	D	D	D	D	D	D	D
Winterfat	Krascheninnikovia lanata	EP	D	D	P	P	P	P	P	P	D	D	D	D
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	D	D	D	U
Fourwing Saltbush	Atriplex canescens	EP	P	P	P	P	P	D	D	D	D	D	D	P

Animal Kind: Livestock

Animal Type: Sheep

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Winterfat	Krascheninnikovia lanata	EP	P	P	P	P	P	P	P	P	P	P	P	P
Western Wheatgrass	Pascopyrum smithii	EP	U	U	D	D	D	D	D	D	D	D	D	U
Bigelow Sagebrush	Artemisia bigelovii	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Fourwing Saltbush	Atriplex canescens	EP	P	P	P	P	P	D	D	D	D	D	D	P
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	U	U	U	U
Needleandthread	Hesperostipa comata	EP	D	D	P	P	P	D	D	D	D	D	D	D
New Mexico Feathergrass	Hesperostipa neomexicana	EP	D	D	P	P	P	D	D	D	D	D	D	D

Animal Kind: Wildlife

Animal Type: Antelope

Common Name	Scientific Name	Plant Part	Forage Preferences											
			J	F	M	A	M	J	J	A	S	O	N	D
Winterfat	Krascheninnikovia lanata	EP	D	D	D	D	D	D	D	D	D	D	D	D
Western Wheatgrass	Pascopyrum smithii	EP	U	U	D	D	D	U	U	U	U	U	U	U
Bigelow Sagebrush	Artemisia bigelovii	EP	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S	N/S
Fourwing Saltbush	Atriplex canescens	EP	D	D	D	D	D	D	D	D	D	D	D	D
Bottlebrush Squirreltail	Elymus elymoides	EP	U	U	D	D	D	U	U	U	U	U	U	U

SUPPORTING INFORMATION

Associated sites:

Site Name	Site ID	Site Narrative

Similar sites:

Site Name	Site ID	Site Narrative

State Correlation:

This site has been correlated with the following sites:

Inventory Data References:

Data Source	# of Records	Sample Period	State	County

Type Locality:State: New MexicoCounty: Catron, Socorro

Latitude: _____

Longitude: _____

Township: _____

Range: _____

Section: _____

Is the type locality sensitive? Yes ☐ No ☐**General Legal Description:****Relationship to Other Established Classifications:****Other References:**

Data collection for this site was done in conjunction with the progressive soil surveys within the New Mexico and Arizona Plateaus and Mesas 36 Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: McKinley, Cibola, Sandoval, Catron, Socorro.

1. Brockway, D.G., R.G. Gatewood, and R.B. Paris. 2002. Restoring grassland savannas from degraded pinyon-juniper woodlands: effects of mechanical overstory reduction and slash treatment alternatives. *Journal of Environmental Management*. 64: 179-197.
2. Johnsen, T. N., Jr. 1962. One-seeded juniper invasion of northern Arizona grasslands. *Ecological Monographs*. 32:187-207.
3. Miller, R.F., and R.J. Tausch. 2001. The role of fire in pinyon and juniper woodlands: a descriptive analysis. Pages 15–30 in K.E.M. Galley and T.P. Wilson (eds.). *Proceedings of the Invasive Species Workshop: the Role of Fire in the Control and Spread of Invasive Species*. Fire Conference 2000: the First National Congress on Fire Ecology, Prevention, and Management. Miscellaneous Publication No. 11, Tall Timbers Research Station, Tallahassee, FL.

References Continued:

4. Parker, K. W. 1945. Juniper comes to the grassland. *American Cattle Producer*. 27: 12-14.
5. Phillips, Frank J. 1910. The dissemination of junipers by birds. *Forestry Quarterly*. 8: 60-73. (From Expt. Sta. Rec. 22: 644.)
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7. Richardson, D.M. and W.J. Bond. 1991. Determinants of plant distribution: Evidence from pine invasions. The American Naturalist. 137: 639-668

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Characteristic Soils Are:

Datil	Dioxice
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Other Soils included are:

Aquima, Augustine, Bond, Celacy	Celsosprings, Clovis, Doakum, El Rancho, Flaco
Flugle, Galestina, Gilco, Goesling, Grieta, Guy	Hagerman, Jacee, Jocity, Kim, La Fonda
Landavaso, Las Lucas, Loarc, Maia, Manzano	Marianolake, Mikim, Millpaw, Oelop, Paguete
Penistaja, Querencia, Redpen, Scholle, Shavano	Silver, Tapia, Teczuni, Tejana, Veteado, Witt, Zia

Site Description Approval:

	<u>Date</u>	<u>Approval</u>	<u>Date</u>
Don Sylvester	02/15/80	Durwood E. Ball	03/27/80

Site Description Revision:

	<u>Date</u>	<u>Approval</u>	<u>Date</u>
David Trujillo	12/16/04	George Chavez	3/2/05